UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS

U.S. COMMODITY FUTURES TRADING COMMISSION, **Plaintiff,** **v.** **NAV SARAO FUTURES LIMITED PLC AND NAVINDER SINGH SARAO,** **Defendants.**	1:15-cv-03398 Judge Andrea R. Wood Magistrate Judge Michael T. Mason

COMPLAINT FOR INJUNCTIVE RELIEF, CIVIL MONETARY PENALTIES, AND OTHER EQUITABLE RELIEF

The U.S. Commodity Futures Trading Commission (Commission or CFTC), by and through its attorneys, hereby alleges as follows:

I. INTRODUCTION

1. During certain periods from June 2009 to the present, Defendants engaged and are engaging in a massive effort to manipulate the Chicago Mercantile Exchange's (CME's) E-mini S&P 500 futures contract (the E-mini S&P) by utilizing a variety of exceptionally large, aggressive, and persistent spoofing tactics. In particular, beginning in June 2009, Defendants schemed to design and utilize an automated system to manipulate the E-mini S&P price to their benefit. From at least April 2010 to January 2012; July 2012 to June 2014; and September 2014 to present (the Relevant Period), Navinder Sarao (Sarao) and/or his company Nav Sarao Futures Limited PLC (Sarao Futures), acting through its agents and employees, including Sarao, (collectively, Defendants), used this automated system, as well as a variety of manual techniques, to place, modify, and cancel hundreds of thousands of orders with no intention of executing such

orders so as to affect the E-mini S&P price such that Defendants could profit from their other trading. Defendants' actions caused artificial prices to exist in the intra-day price of the lead month of the E-mini S&P during the Relevant Period, including on at least the following 12 days: April 27, May 4-6, and May 10, 2010; January 28, February 22, March 4, May 2, July 29, and August 4, 2011; and March 10, 2014 (the Example Price-Impact Days).[1] This period includes May 6, 2010, commonly known as the Flash Crash Day, when E-mini S&P prices, along with many U.S. equities prices, quickly and dramatically plummeted and then recovered in a matter of minutes.

2. Defendants' manipulative scheme involves numerous aggressive spoofing tactics. First, Defendants utilized an automated "layering" algorithm (the Layering Algorithm) that typically simultaneously layered four to six exceptionally large sell orders into the visible E-mini S&P central limit order book (Order Book). Each sell order was one price level from the next, generally beginning at least three or four price levels from the best asking price in the Order Book. As the market price moved, Defendants' Layering Algorithm automatically simultaneously moved the large layered sell orders, resulting in the orders remaining at least three or four price levels from the best asking price in the Order Book. This caused the orders to remain visible to other market participants in the Order Book, with very little risk of the sell orders resulting in a consummated trade because each order was several price levels above the best asking price.

3. On average, on the Example Price-Impact Days, Defendants used the Layering Algorithm to place hundreds of orders for tens of thousands of contracts that were modified thousands of times and eventually canceled over 99% without ever resulting in a trade. At times on

[1] Defendants' manipulation of the E-mini S&P futures market was not limited solely to the Example Price-Impact Days. These specific days are referenced for illustrative purposes only. Plaintiff anticipates supplementing the Example Price-Impact Days as additional information is obtained and analyzed.

the Example Price-Impact Days when the Layering Algorithm was active, Defendants' sell-side orders constituted as much as 40% of all active sell-side orders.

4. On each of the Example Price-Impact Days, as well as on other days during the Relevant Period, Defendants intentionally utilized the Layering Algorithm to overload the sell side of the Order Book to temporarily artificially lower the E-mini S&P market price. Moreover, when Defendants turned off the Layering Algorithm, the artificially lowered price typically rebounded to its previous level. During the Example Price-Impact Days, as well as on other days during the Relevant Period, Defendants cycled the Layering Algorithm on and off numerous times in order to cause temporary price volatility. Defendants took advantage of this price volatility by trading an exceptionally high volume of E-mini S&P contracts in a manner designed to profit from the artificial price swings. On each of the Example Price-Impact Days, Defendants traded on average $7.8 billion in notional value, resulting in daily profits averaging approximately $530,000. In total, Defendants profited approximately $6.4 million on the twelve specific Example Price-Impact Days alleged herein.

5. Defendants' scheme further involved other unlawful Order Book activities in the E-mini S&P contract. Specifically, throughout the Relevant Period, Defendants "flashed" large lot orders in a variety of lot sizes in the Order Book that were quickly canceled with no intention of these orders resulting in trades (Flash Spoofing). At times during the Relevant Period, the Flash Spoofing was used with and to amplify the price impact of the Layering Algorithm. At other times, Defendants' Flash Spoofing was used alone to benefit Defendants' trading strategies.

6. For instance, on the Example Price-Impact Days, Defendants repeatedly engaged in a Flash Spoofing tactic whereby Defendants manually placed and canceled orders in lot sizes of 188 and 289 contracts (the 188/289 Spoofing), typically one or two levels away from the best bid

or ask price in the Order Book. Defendants primarily utilized 188/289 Lot Spoofing on the sell side of the Order Book in conjunction with the Layering Algorithm.

7. At various times during the Relevant Period, Defendants used other Flash Spoofing tactics involving differing large-lot orders, including frequently placing and canceling 2000 lot orders (2000 Lot Spoofing). Defendants engaged in the 2000 Lot Spoofing when attempting to execute orders on the opposite side of the Order Book at favorable prices. Defendants placed the Large Lot Spoofing orders with no intention of executing trades.

8. Presently, Sarao is actively trading high volumes in the E-mini S&P market in a personal account. Sarao continues to engage in spoofing activity by, among other things, placing and quickly canceling orders with no intention of executing a trade.

9. Defendants have actively placed orders and traded in the E-mini S&P market on at least 800 days during the Relevant Period. Upon information and belief, Defendants engaged in one or more of the above spoofing tactics on the vast majority of days they were actively trading in the E-mini S&P market during the Relevant Period. During the Relevant Period, Defendants profited from their E-mini S&P trading by approximately $40 million.

10. These acts and practices constitute violations of the Commodity Exchange Act (Act or CEA), 7 U.S.C. §§ 1 *et seq.* (2012), and Regulations promulgated by the Commission. Specifically, Defendants' conduct violates Sections 4c(a)(5)(C), 6(c)(1) and (3),[2] and 9(a)(2) of the Act, 7 U.S.C. §§ 6c(a)(5)(C), 9(1) & (3), and 13(a)(2) (2012), and Commission Regulations (Regulations) 180.1 and 180.2, 17 C.F.R. § 180.2 (2014), which, among other things, make it unlawful for any person to manipulate, attempt to manipulate, use a manipulative device, or attempt

[2] Section 6(c)(1) and (3) of the Act became effective on August 15, 2011. Prior to that date, Defendants' conduct violated Section 6(c) of the Act, 7 U.S.C. §§ 9, 15 (2008).

to use a manipulative device, or spoof the market of any commodity in interstate commerce or for future delivery on or subject to the rules of any registered entity, including any contract market.

11. Sarao committed the acts described herein within the course and scope of his employment at, or agency with, Sarao Futures; therefore, Sarao Futures is liable under Section 2(a)(1)(B) of the Act, 7 U.S.C. § 2(a)(1)(B) (2012), and Regulation 1.2, 17 C.F.R. § 1.2 (2014), as a principal for its agents' acts, omissions, or failures.

12. Sarao controlled Sarao Futures, directly or indirectly, and did not act in good faith or knowingly induced, directly or indirectly, the acts of Sarao Futures that constitute the violations alleged in this Complaint; therefore, pursuant to Section 13(b) of the Act, 7 U.S.C. § 13c(b) (2012), Sarao is liable as a controlling person for violations of the Act and Regulations committed by Sarao Futures.

13. Plaintiff Commission brings this action pursuant to Section 6c of the Act, 7 U.S.C. § 13a-1 (2012), to enjoin Defendants' violative acts and practices and to compel Defendants' compliance with the Act and Regulations. In addition, the CFTC seeks civil monetary penalties and such other equitable relief, including but not limited to disgorgement, as this Court deems necessary or appropriate.

II. JURISDICTION AND VENUE

14. This Court has jurisdiction over this action pursuant to Section 6c of the Act, which authorizes the Commission to seek injunctive relief against any person, or to enforce compliance with the Act and Regulations, whenever it shall appear to the Commission that such person has engaged, is engaging, or is about to engage in any act or practice constituting a violation of any provision of the Act or any rule, regulation, or order thereunder.

15. Venue properly lies with this Court pursuant to Section 6c(e) of the Act, 7 U.S.C. § 13a-1(e) (2012), in that Defendants transact business in this District, and the acts and practices in

violation of the Act and Regulations have occurred, are occurring, or are about to occur within this District.

III. THE PARTIES

16. The **U.S. Commodity Futures Trading Commission** is an independent federal regulatory agency that is charged by Congress with the responsibility for administering and enforcing the provisions of the Act, 7 U.S.C. §§ 1 *et seq*., and the Regulations promulgated thereunder, 17 C.F.R. §§ 1 *et seq*. (2014). One of its core responsibilities is to protect the public interest by deterring and preventing price manipulations of the commodity markets or futures markets or other disruptions to market integrity. *See* 7 U.S.C. § 5(b) (2012).

17. **Nav Sarao Futures Limited PLC** is a private limited company incorporated in the United Kingdom with its principal place of business in London, England. Sarao Futures began operations on or about July 1, 2005. Sarao Futures has never been registered with the Commission.

18. **Navinder Singh Sarao** resides in London, England and is the owner and sole employee and trader of Sarao Futures. Sarao was responsible for trades on behalf of Sarao Futures during the Relevant Period. Sarao has been a member of the CME since May 2008. Sarao has never been registered with the Commission.

IV. FACTS

A. Background

i. Definitions

19. A futures contract is an agreement to purchase or sell a financial instrument or physical commodity for delivery or cash settlement in the future at a price determined at initiation of the contract that obligates each party to the contract to fulfill the contract at the specified price. Futures contracts are used to assume or shift price risk and may be satisfied by cash settlement,

delivery, or offset. Futures contracts are commonly used to hedge risks or to speculate on the price of financial instruments or physical commodities.

20. Open interest represents the total number of futures contracts in a market that remain "open" at the end of a trading session across all available contract months. In other words, open interest refers to those contracts not yet liquidated either by an offsetting futures market transaction or delivery. For each open contract there is a "short" and a "long" position. For example, if open interest is one hundred contracts, then there are outstanding one hundred short contracts and one hundred long contracts. A trader who has no open interest (and thus no exposure to market risk) is said to be "flat."

21. Volume is the number of purchases or sales of futures contracts made during a specified period of time.

22. An "order" is a submission to an exchange to buy or sell a futures contract that has been acknowledged by an exchange and entered into an order book. An order "lot" typically consists of one contract. An "order modification" is a change to an order that is in the order book. An "order cancellation" is the cancellation of an existing order that is in the order book.

23. A limit order allows a buyer to define the maximum price to pay and the seller the minimum price to accept (the Limit Price). A limit order remains on the order book until the order is either executed, canceled, or expires. Any portion of the order that can be matched is immediately executed.

24. A "bid" is an offer to buy a specific quantity of an exchange-traded product at a stated price.

25. An "ask" is an offer to sell a specific quantity of an exchange-traded product at a stated price.

26. The "2010 Flash Crash" refers to an event that occurred on May 6, 2010 in the U.S. financial markets. Between 1:41 and 1:44 p.m. CT, the E-mini S&P market price suffered a sharp decline of 3%. Then, at 1:45 p.m. CT, in a matter of 15 seconds, the E-mini S&P market price declined another 1.7%. The price crash in the E-mini S&P market quickly spread to major U.S. equities indices which suffered precipitous declines in value of approximately 5 to 6%, with some individual equities suffering much larger declines. After a few minutes, markets quickly rebounded to near previous price levels. In their Preliminary Findings Regarding the Events of May 6, 2010, the CFTC and the Securities and Exchange Commission noted that a significant imbalance between sell orders and buy orders contributed to a sudden loss of liquidity in the E-mini S&P market. This loss of liquidity, in conjunction with other market events, directly contributed to the E-mini S&P price crash.

ii. E-mini S&P Market Fundamentals

27. The E-mini S&P is regularly traded in five contract months in the March quarterly cycle (March, June, September, and December).

28. Prices of the E-mini S&P contract are $50 times the value of the S&P 500 Index. During the Relevant Period, the E-mini S&P contract's average price was approximately $1,519 and the average volume was about 1.7 million contracts traded per day.

29. During the Relevant Period, prior to November 19, 2012, the trading day began on the electronic trading platform, Globex, at 3:30 p.m. CT and continued to 3:15 p.m. CT the next day. Trading halted from 3:15 p.m. CT to 3:30 p.m. CT after November 19, 2012, the trading day began on Globex at 5:00 p.m. CT and continued to 4:15 p.m. CT the next day. .

30. The Order Book is an electronic market structure that matches customer orders based on price and time priority. The highest bid and lowest ask constitute the "best market" or

"touch." Prices in the Order Book move in increments of one quarter cent per index point, known as a "tick." A movement in price of one tick results in a change in the value of the contract by $12.50. Orders at the best ten ticks on the buy and sell side of the Order Book are visible to other market participants.

31. Trading in the E-mini S&P is conducted electronically via the CME's Globex electronic trading system. Globex traders have the ability to enter, modify, and cancel bids and offers in a matter of milliseconds through a computer portal to the Globex platform.

32. When a "buy" or "sell" order is placed on Globex, the order becomes part of the Order Book. The Order Book displays the total order volume ten ticks deep on both the bid and ask side. Individual orders are aggregated at each tick, so it is typically not possible for market participants to identify individual orders within the Order Book. Globex functions such that the best available bid or ask price must be taken ("hit" or "lifted") by the market for a trade to occur, before the next available best bid or ask price can be taken. The best bid price is the highest available price for buy orders that are posted in the market. The best ask price is the lowest available price for sell orders that are posted in the market.

33. Many market participants, relying on the information contained in the Order Book, consider the total relative number of bid and ask offers in the Order Book when making trading decisions. For instance, if the total number of sell orders significantly outweighs the total number of buy orders, market participants may believe a price drop is imminent and trade accordingly. Similarly, if the balance of buy and sell orders changes abruptly, market participants may believe the new orders represent legitimate changes to supply and demand and therefore trade accordingly. Further, many market participants utilize automated trading systems that analyze the market for

these types of order imbalances and use that information to determine trading strategies. Consequently, actions in the Order Book can, and do, affect the price of the E-mini S&P.

34. A long position in the E-mini S&P is a market position in which the trader has bought E-mini S&P contracts that do not offset a previously established short position. A trader profits on a long position when the price of E-mini S&P increases.

35. A short position in the E-mini S&P is a market position in which the trader has sold E-mini S&P contracts that do not offset a previously established long positon. A trader profits on the short position when the price of the E-mini S&P decreases.

iii. Background Information About Defendants' Trading Activities

36. During the Relevant Period, Defendants utilized a combination of automated and manual trading systems to place, modify, and cancel orders, resulting in a very high number of orders, modifications, cancelations, and transactions, especially compared to other E-mini S&P market participants. Defendants actively traded in the E-mini S&P market on over at least 800 days during the Relevant Period. As recently as April 6, 2015 Defendants continued to trade the E-mini S&P.

37. Generally, during the Relevant Period, Defendants employed a high-frequency, day-trading strategy in the E-mini S&P market. The objective for most high-frequency day traders is to take large short-term positions and quickly trade out of those positions to profit from small price movements in the market. Frequently, during the Relevant Period, Defendants would establish large, short-term positions on either side of the market throughout the day and quickly trade out of those positions. Defendants typically repeated this cycle many times a day, but would normally begin and end each day flat, holding no positions.

38. For example, on May 4, 2010, Defendants had established a long position of over 2,000 E-mini S&P contracts, and over a forty-minute period, then proceeded to repeatedly sell and buy E-mini S&P contracts such that, at the end the forty-minute period, Defendants had established a short position of over 1,500 contracts. This cycle was repeated several times during the day, and Defendants ultimately ended the day flat, profiting $876,823 from this trading. On that day, Defendants had the fifth highest trading volume in the E-mini S&P, trading 130,030 E-mini S&P contracts.

39. Defendants' spoofing tactics were intended to complement Defendants' trading strategy by injecting volatility into and causing price movements in the E-mini S&P market, which Defendants could exploit and profit.

iv. Defendants' Trading Accounts

40. Defendants traded the E-mini S&P at four futures commission merchants (FCMs) during the Relevant Period: FCM A (April 2010 to October 2011), FCM B (November 2011 to January 2012), FCM C (July 2012 to August 2012), and FCM D (August 2012 to June 2014). Sarao began trading the E-mini S&P contract in a personal account at FCM D in October 2014 and continues to do so through the present. The majority of Defendants' trading occurred using the accounts at FCMs A and D. At all times during the Relevant Period, Sarao was responsible for all trading decisions relating to Defendants' accounts.

B. Defendants' Manipulative Scheme

41. During the Relevant Period, Defendants engaged, and Sarao is currently engaging, in a scheme to manipulate the price of the E-mini S&P utilizing a variety of spoofing tactics in the E-mini S&P Order Book designed to cause price swings that Defendants could exploit through their trading. Specifically, Defendants utilized the Layering Algorithm and Flash Spoofing, at times in conjunction and at times in isolation, on the vast majority of trading days throughout the

Relevant Period.

i. Defendants' Creation and Use of the Layering Algorithm

42. The Layering Algorithm is an automated program utilized by Defendants during the Relevant Period to initiate, quickly and repeatedly modify, and eventually cancel several sell orders simultaneously in such a manner that the orders were visible to other market participants, but did not result in executed transactions.

a) Defendants' Creation of the Layering Algorithm

43. Prior to June 2009, Defendants used an off-the-shelf trading platform commonly utilized by traders in the futures trading industry to place E-mini S&P orders. Beginning in June 2009, Sarao sought technical assistance in modifying the trading platform to create an automated trading algorithm designed to rapidly place, modify, and cancel orders in the E-mini S&P market. Specifically, Sarao emailed a representative at FCM A and indicated that he needed technical assistance in programming a "cancel if close function, so that an order is canceled if the market gets close."

44. Shortly thereafter, Sarao emailed directions to a representative of the company that designed and sold his off-the-shelf trading platform. In that email, Sarao indicated that he wanted the trading program to be altered to have numerous additional functions, including, among other things:

- a "cancel if close function";
- the ability to "alternate the closeness ie one price away or three prices away";
- "a facility to be able to enter multiple orders at different prices using one click";

- "[t]he ability for my orders to rest on particular size, ie my order will be pulled if there are not x amount of orders beneath it"; and
- "[t]he ability for my orders to only allow 1 clip to go into them. Hence, if I am working 500 lot and a 2 lot trades, the 498 balance is removed immediately."

45. Subsequently, in November 2009, Sarao emailed a representative of the trading system company thanking him for assisting in modifying the trading platform and noting that he "found [the modified platform] really useful." Sarao further indicated that

> [t]he system you set up was basically one whereby I turn the [trading platform] on or off and when it was turned on it would put offers a specific value and quantity away from the best offer. In the version you set up, we always had offers 3, 4, 5 and 6 prices away from the best offer.

Sarao went on to request that the individual give him the code used so that Sarao could "play around with creating new versions" of the modified platform.

46. In October 2011, Sarao emailed a representative of a software firm about further refining his trading program.

b) Defendants' Use of the Layering Algorithm

47. On the Example Price-Impact Days during the Relevant Period, Defendants used the Layering Algorithm to place four to six exceptionally large sell orders into the Order Book, each one tick from the next, generally beginning at least three or four ticks from the best asking price. As the market price moved, the Layering Algorithm automatically simultaneously modified the large layered sell-side order prices, resulting in the orders remaining at least three or four ticks from the best asking price in the Order Book. These orders were modified hundreds of times in order to keep them from resulting in executed trades. Defendants placed the Layering Algorithm orders with no intention of these orders resulting in transactions.

48. On the Example Price-Impact Days, the Layering Algorithm orders differed significantly from average E-mini S&P orders. For instance:

a. The Layering Algorithm orders were canceled without execution at a much higher rate (99+% canceled with no execution) than similarly sized orders placed by other traders (less than 49% canceled with no execution);

b. The Layering Algorithm orders were much larger (504 contracts on average) than other traders' orders (7 contracts on average); and

c. The Layering Algorithm orders were modified much more frequently (average 161 modifications per order) than other traders' orders (average less than 1 modification per order).

49. On the Example Price-Impact Days, Defendants' total order modifications comprised at least 60% of the total sell-side market order modification volume, meaning that Defendants' total order modification volume was more than one and a half times that of the rest of the market.

50. On the Example Price-Impact Days, Defendants used the Layering Algorithm to place, modify, and cancel orders in cycles typically lasting less than 6 minutes. After canceling the Layering Algorithm orders, Defendants typically let the E-mini S&P market price rebound for 2 to 3 minutes before beginning a new cycle of orders, modifications, and cancellations. On the Example Price Impact Days, Defendants used the Layering Algorithm for a combined total of almost than 38 hours.

51. These Layering Algorithm cycles had the ability to, and did, create large Order Book imbalances between the sell and buy side of the E-mini S&P market. On many occasions

when the Layering Algorithm was operating, Defendants' sell-side orders accounted for approximately 20% of the total sell-side orders in the Order Book and sometimes reached as high as 40%. On average, the Layering Algorithm orders added over $150 million in notional value to the sell-side Order Book imbalance.

52. The order book imbalances created by Defendants on the Example Price-Impact Days had the ability to affect the E-mini S&P market price and, in fact, were intended to have an effect on the E-mini S&P market price by indicating to other market participants that sell-side demand outpaced buy-side demand.

53. In fact, Defendants' use of the Layering Algorithm did impact the price of the E-mini S&P market. On the Example Price-Impact Days, Defendants' use of the Layering Algorithm caused the price in the E-mini S&P contract to be temporarily artificially depressed while the Layering Algorithm was active. Once the Layering Algorithm was turned off and the orders were canceled, the market price typically rebounded. In other words, Defendants' use of the Layering Algorithm introduced artificial volatility into the E-mini S&P futures market and caused artificial prices to exist.

54. While the Layering Algorithm was operating on the Example Price-Impact Days, Defendants traded in a manner designed to profit both from the temporary artificial price drop in the E-mini S&P and from the rebounding price after the Layering Algorithm was turned off. When the Layering Algorithm was on, Defendants typically attempted to take advantage of the expected price drop caused by the Layering Algorithm by repeatedly selling a very high volume of E-mini S&P contracts and buying the contracts back at a lower price. When the Layering Algorithm was turned off, Defendants typically bought a very high volume of E-mini S&P contracts and sold the contracts at a profit as the price rebounded.

55. On the Example Price-Impact Days, Defendants traded a total notional value of approximately $93.1 billion in the E-mini S&P contract and made a total profit of approximately $6.4 million.

56. During the Relevant Period, Defendants used the Layering Algorithm on at least 442 trading days.

57. Upon information and belief, during the remainder of the Relevant Period, Defendants used the Layering Algorithm in the same or similar manner as it was used on the Example Price-Impact Days and Defendants' use of the Layering Algorithm caused artificially depressed prices in the E-mini S&P futures market.

c) Example of the Layering Algorithm Causing an Artificial Price

58. On trading day May 4, 2010, Defendants turned on the Layering Algorithm 31 times, leaving it on for an average of 6.45 minutes. At 11:00:36.846 a.m. CT, Defendants placed four nearly-simultaneous (within 0.002 seconds of one another) orders of 600 lots each at the following prices: 1173.25, 1173.50, 1173.75, and 1174.00. Thus, the order closest to the best ask was still three ticks above the price of 1172.50. These orders were each modified 152 times (one of these orders was canceled and immediately replaced by an identical order; the sum of these two orders' modifications was 152), with each modification occurring when the market price changed to ensure the orders stayed at least three ticks away from the best ask. Defendants canceled the orders at 11:12:38.762 a.m. CT without any portion of them having been filled. The notional value of these Layering Algorithm orders exceeded $140 million.

59. Defendants repeated this basic sequence of events 31 times that day, resulting in a total of 141 orders (totaling 83,900 lots) placed and canceled, and 12,693 modifications. Defendants had the Layering Algorithm on for three hours and twenty minutes that

day and caused artificial prices to occur repeatedly throughout the day in the lead month of the E-mini S&P futures contract.

60. Defendants took advantage of the artificial price swings caused by the Layering Algorithm by executing buy orders totaling 65,015 lots and sell orders totaling 65,015 lots with a total notional value of $7.6 billion and booked a profit of $876,823.

61. On May 4, 2010, Defendants were the fifth-largest traders in the E-mini S&P, trading 130,030 E-mini S&P contracts. Additionally, Defendants order modifications comprised approximately 60% of the total sell-side order modification volume on May 4, 2010.

ii. Defendants' Use of Flash Spoofing

62. In addition to the Layering Algorithm, Defendants frequently manually "flashed" large-lot orders in a variety of lot sizes in the Order Book that were quickly canceled with no intention of these orders resulting in trades. At times during the Relevant Period, the Flash Spoofing was used with and to amplify the impact of the Layering Algorithm. At other times, Defendants' Flash Spoofing was used alone to benefit Defendants' trading strategies.

a) The 188/289-Lot Spoofing

63. On the Example Price-Impact Days, Defendants often "flashed" and quickly canceled several large-lot orders, typically on the sell-side of the Order Book. Specifically, Defendants manually placed 1,728 sell-side orders in lot sizes of 188 and 289 with an approximate notional value of $26.5 billion. Defendants then canceled approximately 95% of the 188 and 289 lot sell orders prior to any execution.

64. These orders were typically placed on the sell-side of the Order Book, normally two or three ticks from the best ask and almost 80% were placed while the Layering Algorithm was

operating. Frequently, two or more of each order size were placed simultaneously at the same price level. These orders were typically canceled within two seconds.

65. The 188/289-Lot Spoofing was primarily used to exacerbate the price impact of the Layering Algorithm by creating extreme momentary sell-side order imbalance. Defendants placed the 188-lot and 289-lot orders with no intention of these orders resulting in transactions.

66. For instance, on May 5, 2010, from 11:22 a.m. CT to 12:30 p.m. CT, Defendants turned on the Layering Algorithm, placing five orders totaling 2,500 contracts with a notional value of $146.3 million. The orders were one tick apart, starting two ticks from the best asking price. During this hour-long period, Defendants added 107 188-lot and 289-lot sell orders. These orders amounted to 25,267 contracts. All but four of these orders were canceled before any execution and the median cancelation time was less than a second.

67. Upon information and belief, at many times during the Relevant Period, Defendants utilized the 188/289-Lot Spoofing in a same or similar manner as on the Example Price-Impact Days.

b) 2000 Lot Spoofing

68. In addition to using the 188/289 Lot Spoofing, Defendants used other Flash Spoofing tactics involving large-lot orders. For instance, Defendants frequently flashed and quickly canceled orders of 2000 lots, typically at the best bid or ask on both the sell- and buy-sides of the E-mini S&P market when attempting to enter into transactions on the opposite side of the market. Defendant intended the 2000 Lot Spoofing orders to trick other market participants into executing Defendants' orders on the opposite side of the market at favorable prices. Once Defendants other orders were executed, Defendants would typically cancel the 2000 Lot Spoofing orders.

69. For instance, on March 3, 2014, at 11:38:27.538 a.m. CT, Defendants placed a 2000 Lot Spoofing order on the buy-side at a price of $1,839.25. Within 0.2 seconds, Defendants placed a sell order of 169 lots at price $1,839.50 (one tick away from the price of the 2000 Lot Spoofing buy order), which began filling immediately. Less than one second later, after filling 20 lots of the sell order, Defendants canceled the buy-side 2000 Lot Spoofing order before it had any executions. At 11:38:31.826 a.m. CT, Defendants placed another buy-side 2000 Lot Spoofing order at the same price of $1,839.25, and within one millisecond Defendants filled the remainder of the 169-lot sell order. At 11:38:32.336 a.m. CT, approximately one half-second after placing the order, Defendants canceled this second 2000 Lot Spoofing order before it had any executions. Defendants placed these 2000 Lot Spoofing orders with the intent to cancel the orders prior to execution.

70. Additionally, on September 30, 2013, at 12:30:38.987 p.m. CT, Defendants placed a 2,000 Lot Spoofing order on the buy-side at a price of $1,678.50. Simultaneously, Defendants placed a sell order of 384 lots at price $1,678.75 (one tick away from the price of 2000 Lot Spoofing order), which began filling immediately. Less than one second later, after filling 89 lots of the sell order, Defendants canceled the 2000 Lot Spoofing order before it had any executions. Four seconds later, at 12:30:42.867 p.m. CT, Defendants placed another buy-side 2000 Lot Spoofing order at the same price of $1,678.50 and canceled it after approximately 0.7 seconds. Defendants then filled an additional 101 lots of the sell-side order. Six seconds later, at 12:30:49.165 p.m. CT, Defendants placed yet another buy-side 2000 Lot Spoofing order, also at price $1,678.50. While this final Flash Spoofing Order was active, Defendants filled the rest of the sell-side order. Defendants canceled the third 2000 Lot Spoofing order in less than one second, at

12:30:49.708 p.m. CT. Defendants placed these 2000 Lot Spoofing orders with the intent to cancel the orders prior to execution.

71. Upon information and belief, Defendants engaged in 2000 Lot Spoofing on hundreds of occasions during the Relevant Period and placed the 2000 Lot Spoofing orders with the intent to cancel the orders prior to execution.

iii. Defendants' Actions on the 2010 Flash Crash Day

72. Defendants aggressively used both the Layering Algorithm and the 188/289-Lot Spoofing strategies on May 6, 2010, the 2010 Flash Crash day.

73. Defendants first turned on the Layering Algorithm at 9:20 a.m. CT, placing four orders, totaling 2,100 contracts. These orders were each one tick apart, starting three ticks from the best ask. The orders were modified 604 times over the following six minutes so the orders were always at the third level of the sell-side of the order book or deeper, and then canceled with no executions, as the Layering Algorithm was turned off. While the first cycle of the Layering Algorithm was active, the E-mini S&P price fell 39 basis points.

74. While the first cycle of the Layering Algorithm was active, Defendants bought 1,606 contracts and sold 1,032 contracts.

75. Defendants' use of the Layering Algorithm and the 188/289-Lot Spoofing intensified throughout the day. At 11:17 a.m. CT, Defendants turned the Layering Algorithm on for more than two consecutive hours, until 1:40 p.m. CT. During this cycle, Defendants utilized the Layering Algorithm to place five orders, totaling 3,000 contracts. A sixth order was added at around 1:13 p.m. CT, increasing the total to 3,600 contracts.

76. These orders represented approximately $170 million to over $200 million worth of persistent downward pressure on the E-mini S&P price and, over the next two hours, represented

20-29% of the entire sell-side of the Order Book. The orders were replaced or modified more than 19,000 times before being canceled at 1:40 p.m. CT. At that time, the Order Book was severely imbalanced and Defendants' 3,600 Layering Algorithm orders were almost equal to the entire buy-side of the Order Book. In total, the Layering Algorithm was on for over four hours and 25 minutes on May 6, 2010.

77. In addition to the Layering Algorithm, Defendants aggressively utilized the 188/289-Lot Spoofing which intensified the Layering Algorithm's effects. Between 12:33 p.m. CT–1:45 p.m. CT, Defendants placed a total of 135 orders with 188 or 289 lots on the sell-side of the Order Book, totaling 32,046 contracts. Of these 135 188/289-lot orders, 132 orders were canceled without resulting in execution.

78. Between 11:17 a.m. CT and 1:40 p.m. CT, Defendants' actions contributed to an extreme order book imbalance in the E-mini S&P market. This order book imbalance contributed to market conditions that caused the E-mini S&P price to fall 361 basis points.

79. During this two-hour period, Defendants traded 62,077 E-mini S&P contracts with a notional value of $3.5 billion.

80. On May 6, 2010, Defendants caused an artificially low price to exist in the lead month of the E-mini S&P contract.

B. Sarao's Ongoing Spoofing

81. In October 2014, Sarao opened a personal trading account and continues to actively trade in the E-mini S&P futures market. Sarao continues to place a very high volume of orders and cancel nearly 90% of certain size orders, including buy orders in lot sizes 1, 2, 15, 24, and 26, often in less than one second. During this six-month period, Sarao bought and sold over 707,000 lots in the E-mini S&P futures contract with a total notional value exceeding $71 billion. Upon

information and belief, Sarao continues to enter orders in the E-mini S&P futures contract with the intent to cancel orders prior to execution.

V. VIOLATIONS OF THE CEA AND REGULATION 180.2

COUNT ONE
MANIPULATION OF THE PRICE OF THE E-MINI S&P 500 FUTURES CONTRACT
Violations of Sections 6(c) and 9(a)(2) of the Act, 7 U.S.C. §§ 9 & 13(a)(2) (2012) (For the Period Prior to August 15, 2011)

and

Violations of Section 6(c)(3) and 9(a)(2) of the Act, 7 U.S.C. § 9(c)(3) & 13(a)(2) (2012)), and Commission Regulation 180.2, 17 C.F.R. §180.2 (2014) (For the Period August 15, 2011 to the Present)

82. Paragraphs 1 through 81 are realleged and incorporated herein by reference.

83. Section 9(a)(2)[3] of the Act makes it illegal for any person to manipulate or attempt to manipulate, among other things, the price of any futures contract or commodity in interstate commerce, or for future delivery on or subject to the rules of any registered entity, including any contract market.

84. Section 6(c)(3) of the Act and Regulation 180.2 make it illegal for "any person, directly or indirectly, to manipulate or attempt to manipulate the price of any . . . commodity . . . for future delivery on or subject to the rules of any registered entity."

[3]Section 9(a)(2) of the Act was amended by the Dodd Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-201, 24 Stat. 1376 (2010) (effective July 16, 2011) to insert the word "swap" into the provision. This amendment, however, does not affect the operative language for the violations alleged in this Complaint prior to July 16, 2011.

85. By virtue of the foregoing, during the Relevant Period, Defendants had the ability to affect or influence, intended to affect or influence and did affect or influence the intra-day contract price for the near month of the E-mini S&P during the Relevant Period, including but not limited to the Example Price-Impact Days. Defendants caused the intraday price of the near-month E-mini S&P to be artificial on at least the Example Price-Impact Days. Accordingly, Defendants violated Sections 6(c)(3) and 9(a)(2) of the Act and Regulation 180.2.

86. Section 2(a)(1)(B) of the Act provides that the act, omission, or failure of any official, agent, or other person acting for any corporation within the scope of his employment shall be deemed the act of the corporation. Because the actions of the officers, employees, and agents of Sarao Futures, including, but not limited to Sarao, that violated Sections 6(c)(3) and 9(a)(2) of the Act and Regulation 180.2 were within the scope of their employment, Sarao Futures is liable for those acts constituting violations pursuant to Section 2(a)(1)(B) of the Act.

87. Sarao controlled Sarao Futures, directly or indirectly, and did not act in good faith or knowingly induced, directly or indirectly, the acts of Sarao Futures that constitute the violations alleged in this Count; therefore, pursuant to Section 13(b) of the Act, Sarao is liable as a controlling person for the violations by Sarao Futures of Sections 6(c)(3) and 9(a)(2) of the Act and Regulation 180.2.

88. Each and every instance during the Relevant Period that the intra-day contract price for the near month of the of the E-mini S&P was artificial as a result or partial result of Defendants' conduct is alleged herein is a separate and distinct violation of Section 9(a)(2) of the Act.

COUNT TWO
ATTEMPTED MANIPULATION OF THE PRICE OF THE E-MINI S&P 500 FUTURES CONTRACT
Violations of Sections 6(c) and 9(a)(2) of the Act, 7 U.S.C. §§ 9 & 13(a)(2) (2012)
(For the Period Prior to August 15, 2011)

and

Violations of Sections 6(c)(3) of the Act and 9(a)(2) of the Act, 7 U.S.C. §§ 9(c)(3) & 13(a)(2) (2012), and Commission Regulation 180.2, 17 C.F.R. §180.2 (2014)
(For the Period August 15, 2011 to the Present)

89. Paragraphs 1 through 81 are realleged and incorporated herein by reference.

90. Section 9(a)(2) of the Act make it illegal for any person to attempt to manipulate the price of any commodity in interstate commerce, or for future delivery on or subject to the rules of any registered entity, including any contract market.

91. Section 6(c)(3) of the Act and Regulation 180.2 make it illegal for "any person, directly or indirectly, to manipulate or attempt to manipulate the price of any . . . commodity . . . for future delivery on or subject to the rules of any registered entity."

92. By virtue of the foregoing, during the Relevant Period, Defendants intended to affect or influence the intra-day contract price for the near month of the E-mini S&P during the Relevant Period and engaged in repeated overt acts in furtherance of that intent. Accordingly, Defendants violated Sections 6(c)(3) and 9(a)(2) of the Act and Regulation 180.2.

93. Section 2(a)(1)(B) of the Act provides that the act, omission, or failure of any official, agent, or other person acting for any corporation within the scope of his employment shall be deemed the act of the corporation. Because the actions of the officers, employees, and agents of Sarao Futures, including, but not limited to Sarao, that violated Sections 6(c)(3) and 9(a)(2) of the

Act and Regulation 180.2 were within the scope of their employment, Sarao Futures is liable for those acts constituting violations pursuant to Section 2(a)(1)(B) of the Act.

94. Sarao controlled Sarao Futures directly or indirectly, and did not act in good faith or knowingly induced, directly or indirectly, the acts of Sarao Futures that constitute the violations alleged in this Count; therefore, pursuant to Section 13(b) of the Act, Sarao is liable as a controlling person for the violations by Sarao Futures of Sections 6(c)(3) and 9(a)(2) of the Act and Regulation 180.2.

95. Each and every day instance during the Relevant Period that Defendants intended to affect or influence the intra-day contract price for the E-mini S&P and took an overt act in furtherance of that intent, including but not limited to, every bid, ask, purchase, sale, modification, cancellation, and trade, is alleged herein as a separate and distinct violation of Sections 6(c)(3) and 9(a)(2) of the Act and Regulation 180.2.

COUNT THREE
SPOOFING OF THE E-MINI S&P FUTURES CONTRACT
Violations of Section 4c(a)(5)(c) of the Act,
7 U.S.C. § 6c(a)(5)(C) (2012)

(For the Period July 16, 2011 to the Present)

96. The allegations set forth in paragraphs 1 through 81 are realleged and incorporated herein by reference.

97. Section 4c(a)(5)(c) of the Act makes it unlawful for "any person to engage in any trading, practice or conduct on or subject to the rules of a registered entity that . . . is, of the character of, or is commonly known to the trade as, 'spoofing' (bidding or offering with the intent to cancel the bid or offer before execution)."

98. Since on and after July 16, 2011, Defendants have placed hundreds of thousands of orders for the E-mini S&P in the near-month contract with the intent of cancelling those orders before execution. Accordingly, Defendants violated Section 4c(a)(5)(c) of the Act.

99. Section 2(a)(1)(B) of the Act provides that the act, omission, or failure of any official, agent, or other person acting for any corporation within the scope of his employment shall be deemed the act of the corporation. Because the actions of the officers, employees, and agents of Sarao Futures, including, but not limited to Sarao, that violated Section 4c(a)(5)(c) of the Act were within the scope of their employment, Sarao Futures is liable for those acts constituting violations pursuant to Section 2(a)(1)(B) of the Act.

100. Sarao controlled Sara Futures, directly or indirectly, and did not act in good faith or knowingly induced, directly or indirectly, the acts of Sarao Futures that constitute the violations alleged in this Count; therefore, pursuant to Section 13(b) of the Act, Sarao is liable as a controlling person for the violations by Sarao Futures of Section 4c(a)(5)(c) of the Act.

101. Each and every instance from and after July 16, 2011 that Defendants placed orders for the E-mini S&P contract with the intent of cancelling those orders before execution (and every overt act in furtherance of that intent, including but not limited to, every bid, ask, modification, and cancellation) is alleged herein as a separate and distinct violation of Section 4c(a)(5)(c) of the Act.

COUNT FOUR

USE OF MANIPULATIVE DEVICE IN CONNECTION WITH E-MINI S&P 500 CONTRACT
Violations of Section 6(c)(1) of the Act, 7 U.S.C. § 9(c)(1) (2012), and Commission Regulation 180.1, 17 C.F.R. §180.1 (2014)

(For the Period August 15, 2011 to the Present)

102. The allegations set forth in paragraphs 1 through 81 are realleged and incorporated herein by reference.

103. Section 6(c)(1) of the Act makes it unlawful for any person, directly or indirectly, to use or employ, or attempt to use or employ, in connection with any swap, or a contract of sale of any commodity in interstate commerce, or for future delivery on or subject to the rules of any registered entity, any manipulative or deceptive device or contrivance in contravention of any Commission rule or regulation.

104. Regulation 180.1(a) make it unlawful, *inter alia*, for any person, directly or indirectly in connection with any swap, or a contract of sale of any commodity in interstate commerce, or for future delivery on or subject to the rules of any registered entity, to intentionally or recklessly use or employ, or attempt to use or employ, any manipulative device, scheme, or artifice to defraud; make, or attempt to make, any untrue or misleading statement of a material or to omit to state a material fact necessary in order to make the statements made not untrue or misleading; or engage, or attempt to engage, in any act, practice, or course of business, which operates or would operate as a fraud or deceit on any person.

105. From on and after August 15, 2011, Defendants have knowingly employed manipulative or deceptive devices or contrivances in connection with commodities for future

delivery on or subject to the rules of a registered entity, including placing, with the intent to cancel, hundreds of thousands of orders for the E-mini S&P. Defendants committed such acts intentionally or recklessly. Accordingly, Defendants have violated Section 6(c)(1) and Regulation 180.1.

106. Section 2(a)(1)(B) of the Act provides that the act, omission, or failure of any official, agent, or other person acting for any corporation within the scope of his employment shall be deemed the act of the corporation. Because the acts, omissions, and failures of the officers, employees, and agents of Sarao Futures, including, but not limited to Sarao, that violated Section 6(c)(1) and Regulation 180.1 were within the scope of their employment, Sarao Futures is liable for those acts constituting violations pursuant to Section 2(a)(1)(B) of the Act.

107. Sarao controlled Sarao Futures directly or indirectly, and did not act in good faith or knowingly induced, directly or indirectly, the acts of Sarao Futures that constitute the violations alleged in this Count; therefore, pursuant to Section 13(b) of the Act, Sarao is liable as a controlling person for the violations by Sarao Futures of Section 6(c)(1) and Regulation 180.1.

Each and every manipulation or attempt to manipulate the price of the intra-day contract price for the near month of the E-mini S&P from on or after August 15, 2011 is alleged herein as a separate and distinct violation of Section 6(c)(1) and Regulation 180.1.

VI. RELIEF REQUESTED

WHEREFORE, the Commission respectfully requests that this Court, as authorized by Section 6c of the Act and pursuant to its own equitable powers:

A. Find Defendants liable for violating Sections 4c(a)(5)(c), 6(c)(1) and (3), and 9(a)(2) of the Act and Regulations 180.1 and 180.2.

B. Enter an order of permanent injunction restraining and enjoining Defendants and any of their affiliates, agents, servants, employees, successors, assigns, attorneys, and persons in active

concert with them who receive actual notice of such order by personal service or otherwise, from directly or indirectly violating Sections 4c(a)(5)(C), 6(c)(1) and (3), and 9(a)(2) of the Act and Commission Regulations 180.1 and 180.2;

C. Enter an order of permanent injunction restraining Defendants and any of their affiliates, agents, servants, employees, successors, assigns, attorneys, and persons in active concert with him from:

1. directly or indirectly engaging in, controlling, or directing the trading for any commodity futures, options on commodity futures, commodity options (as that term is defined in Regulation 1.3 (hh), 17 C.F.R. § 1.3(hh) (2011)) ("commodity options"), security futures products, and/or foreign currency (as described in Sections 2(c)(2)(B) and 2(c)(2)(C)(i) of the Act, as amended, 7 U.S.C. §§ 2(c)(2)(B) and 2(c)(2)(C)(i)) ("forex contracts"), in any markets or on any entity regulated by the Commission, for either of themselves or on behalf of any other person or entity, whether by power of attorney or otherwise;

2. applying for registration or claiming exemption from registration with the Commission in any capacity and engaging in any activity requiring such registration or exemption from registration with the Commission, except as provided for in Regulation 4.14(a)(9), 17 C.F.R. § 4.14(a)(9) (2014); and

3. acting as a principal (as that term is defined in Regulation 3.1(a), 17 C.F.R. § 3.1(a) (201e)), agent, or any other officer or employee of any person registered, exempted from registration, or required to be registered with the Commission, except as provided for in Regulation 4.14(a)(9).

D. Enter an order directing Defendants to pay civil monetary penalties, to be assessed by the Court, in an amount not to exceed the higher of $140,000 or triple the monetary gain to them for each violation of the Act and Regulation 180.2, as described herein;

E. Enter an order providing for such other and further remedial and ancillary relief, including, but not limited to, disgorgement and trading and registration bans, as this Court may deem necessary and appropriate; and,

F. Enter an order requiring Defendants to pay costs and fees as permitted by 28 U.S.C. §§ 1920 and 2412(a)(2).

Respectfully submitted,

Charles D. Marvine (Mo. Bar No. 44906)
Jeffrey Le Riche (Mo. Bar No. 46557)
Jo Mettenburg (Ks. Bar No. 19423)
Jennifer J. Chapin (Mo. Bar No. 50554)
U.S. Commodity Futures Trading Commission
4900 Main Street, Suite 500
Kansas City, MO 64112
Tel: (816) 960-7743 (Marvine)
Tel: (816) 960-7745 (Le Riche)
Tel: (816) 960-7744 (Mettenburg)
Tel: (816) 960-7746 (Chapin)
Fax: (816) 960-7750
cmarvine@cftc.gov
jleriche@cftc.gov
jmettenburg@cftc.gov
jchapin@cftc.gov

Carlin Metzger
Illinois A.R.D.C. No. 6275516
U.S. Commodity Futures Trading Commission
525 West Monroe Street, Suite 1100
Chicago, IL 60661
Telephone: (312) 596-0536
Fax: 312-596-0714
cmetzger@cftc.gov